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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,628	12/19/2003	Anthony R. Kelley	MFS-31952-1	9911

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NASA/MARSHALL SPACE FLIGHT CENTER
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MSFC, AL 35812

EXAMINER	
BRINSON, PATRICK F	
ART UNIT	**PAPER NUMBER**
3752	

DATE MAILED: 09/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/750,628	KELLEY ET AL.	
	Examiner	Art Unit	
	Patrick F. Brinson	3752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-26 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-19 and 21-25 is/are rejected.

7)☒ Claim(s) 20 and 26 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 4/16/04.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 5, 12, 19, and 25 are objected to because of the following informalities: Claims 5, 12, 19 and 25 recite R_C without proper antecedent basis. Appropriate correction is required.

Specification

1. The disclosure is objected to because of the following informalities: The specification, page 8, lines 26 and 27, discloses that in regard to fig. 2C, the central circular region 18B can have a single hole (19) of radius R_c where R_c is less than or equal to R_o, but it appears in the figure that R_c is greater than R_o.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6, 8-11, 13 and 15-19 and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,341,848 to **Laws**.

The patent to **Laws** discloses a flow conditioner comprising an orifice plate that adapted to be positioned within a conduit and extend across a transverse cross-section. The plate is defined by a central circular region including a circular hole (2) formed therethrough. The central circular region having a radius (d1), and a ring shaped region surrounding the central circular region between the perimeter (d1) and diameter (D1). The ring-shaped region having a plurality of circular holes (3) formed therethrough with the plurality of holes centered at each radius of the ring shaped region, i.e., the center of the holes are located on D1, as recited in claims 1 and 15. Fig. 5 discloses the holes having a beveled at an upstream side of the plate, as recited in claims 2 and 16, and fig. 4 discloses that each of the plurality of holes has a longitudinal axis that is parallel to a longitudinal axis of the conduit, as recited in claim 3 and 17. In regard to claims 5 and 19, the central circular region could be defined by the region having the diameter at (5) and the ring shaped region defined by the diameter at (6), thereby providing a hole (2) having a radius, $R_C<R_O$. Regarding claim 8, central circular region is defined by circular opening having diameter (d1) and the ring shaped region surrounding the central circular opening has an inner radius equaling the inner radius of the opening and an outer radius at (6), providing a plurality of holes centered at radius (5). **Laws** discloses the structure but does not

specifically disclose the plurality of holes at each radius R of the ring-shaped region satisfying the recited relationship, $A_R = a/(X_R V_R^b)$. It would appear, however, that since a and b are constants, any value may be given to those to satisfy the equation. X_R is defined as a flow coefficent and V_R is defined as flow velocity, both of which would be encounted by the holes of the orifice plate of **Laws** when flow is directed through the pipe and through the orifice plate. At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to modify the arrangement of the holes of the ring shaped region to satisfy the relationship of $A_R = a/(X_R V_R^b)$, if it does not already, since the **Laws** reference discloses the recited structure and wherein it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

3. Claims 8-10 and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,461,932 to **Hall et al**.

The patent to **Hall et al**. discloses a plate (12) adapted to be fixedly positioned in a conduit (16) and extend across a transverse cross-section thereof that is circular. The plate including a central circular region having a radius and a ring shaped region surrounding the central circular region, wherein the ring shaped region has an inner radius equal to the radius of the central circular region and an outer radius at (36). The ring shaped region has plurality of holes formed

therethrough with the plurality of holes centered at a radius R, being greater than the radius of the central circular region and less than the radius of the outer radius of the ring shaped region, as recited in claims 8 and 21. Fig. 1 discloses the plurality of holes having a longitudinal axis that is parallel to the longitudinal axis of the conduit, as recited in claims 10 and 23. Fig. 5a-5c disclose the aperture having a bevel on one side, as recited in claims 9 and 22. **Hall et al**. discloses the structure but does not specifically disclose the plurality of holes at each radius R of the ring-shaped region satisfying the recited relationship, $A_R = a/(X_R V_R^b)$. It would appear, however, that since a and b are constants, any value may be given to those to satisfy the equation. X_R is defined as a flow coefficent and V_R is defined as flow velocity, both of which would be encounted by the holes of the orifice plate of **Hall et al**. when flow is directed through the pipe and through the orifice plate. At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to modify the arrangement of the holes of the ring shaped region to satisfy the relationship of $A_R = a/(X_R V_R^b)$ if it does not already, since the **Hall et al**. reference discloses the recited structure and since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Law** in view of US 2,687,645 to **Velten et al**.

The patent to **Law** does not disclose the hole having an arc shaped slot. The patent to **Velten et al**. discloses an orifice plate (12) including a plurality of arc-shaped slots. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the holes of **Law** to include arc shaped slots, as suggested by **Velten et al**. wherein it is shown to be known in the art to provide holes of an arc-configuration.

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Hall et al**. in view of **Velten et al**.

The patent to **Hall et al.** does not disclose the hole having an arc shaped slot. The patent to **Velten et al**. discloses an orifice plate (12) including a plurality of arc-shaped slots. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the holes of **Hall et al**. to include arc shaped slots, as suggested by **Velten et al**. wherein it is shown to be known in the art to provide holes of an arc-configuration.

Allowable Subject Matter

6. Claims 12, 20 and 26 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The patents to Scheid, Bitsakis et al. and Hayner are all pertinent to Applicant's invention in disclosing orifice plate baffles.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Patrick F. Brinson** whose telephone number is (703) 308-0111. The examiner can normally be reached on M-F 7:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Michael Y. Mar** can be reached on (703) 308-2087. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patrick F. Brinson
Primary Examiner
Art Unit 3752

P. F. Brinson
September 7, 2004